

What is claimed is:

1. A serial data communication method among a plurality of units that make up an apparatus, comprising the steps of:

5 detecting a state transition of a state control signal in a first unit;

sending transition state information corresponding to the state transition from the first unit to a second unit;

10 finding in the first unit a time difference between the occurrence time of the state transition and the sending time of the transition state information;

sending delay time information on the time difference from the first unit to the second unit, following the sending of the transition state information; and

15 regenerating the state control signal in the second unit, at the time when a given delay time has elapsed from the occurrence time of the state transition, based on the transition state information and the delay time information received in the second unit.

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2. The data communication method according to claim 1, further comprising the step of:

sending control command information from the first unit to the second unit, wherein

25 when the state transition has occurred while the control command information is being sent, the state transition information is sent after completion of the sending of the

control command information.

3. The data communication method according to claim 2, further comprising the step of:

5 identifying whether the information received in the second unit is the control command information, the transition state information or the delay time information, from identification information added to the received information.

10 4. A communication control apparatus for controlling serial data communication among a plurality of units that make up an apparatus, the communication control apparatus comprising:

20 a sending control part disposed in a first unit, the sending control part including a detection section to detect a state transition of a state control signal of the first unit; an operation section to find a time difference between the occurrence time of the state transition and the sending time of transition state information corresponding to the transition state; and a sending section to send the transition state information and delay time information on the time difference to the second unit; and

25 a receiving control part disposed in a second unit, the receiving control part including a receive section to receive the transition state information and the delay time information sent from the first unit; and a regeneration section to regenerate the state control signal in the second unit, at the

time when a given delay time has elapsed from the occurrence time of the state transition, based on the delay time information.

- 5 5. The communication control apparatus according to claim 4, wherein

the sending control part further sends control command information to the second unit, and if the state transition occurs while the control command information is being sent, sends  
10 the transition state information after the completion of sending of the control command information.

6. The communication control apparatus according to claim 5, wherein

15 the sending control part adds information for identifying the control command information and the transition state information, to information to be sent, and wherein

the receiving control part identifies whether the received information is the control command information or the  
20 transition state information, in compliance with the identification information added to the received information.

7. A unit of a plurality of units that make up an apparatus, the units comprising:

25 a sending control part including a detection section to detect a state transition of a state control signal, an operation section to find a time difference between the

occurrence time and the sending time of transition state  
information corresponding to the transition state, and a sending  
section to send the transition state information and delay time  
information on the time difference to another unit in serial  
5 communication; and

a receiving control part including a receive section  
to receive the transition state information and the delay time  
information sent from another unit in serial communication, and  
a regeneration section to regenerate the state control signal  
10 when a given delay time has elapsed from the occurrence time  
of the state transition, based on the delay time information.

8. An apparatus comprising a first unit and a second unit  
which are connected through a serial communication means,  
15 wherein

the first unit includes a detection section to detect  
a state transition of a state control signal, an operation  
section to find a time difference between the occurrence time  
of the state transition and the sending time of transition state  
20 information corresponding to the transition state, and a sending  
section to send the transition state information and delay time  
information on the time difference to the second unit, and  
wherein

the second unit includes a receive section to receive  
25 the transition state information and the delay time information  
sent from the first unit, and a regeneration section to  
regenerate the state control signal in the second unit when a

given delay time has elapsed from the occurrence time of the state transition, based on the received transition state information and delay time information.

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